

IN THE CLAIMS

- 1 (Original). A method comprising:
blanket depositing a mobility enhancing silicon material over a region of a semiconductor substrate to form amorphous and crystalline films; and
selectively removing an amorphous film without substantially removing the crystalline film.
- 2 (Original). The method of claim 1 including blanket depositing a material to enhance compressive strain.
- 3 (Original). The method of claim 1 including blanket depositing a material to enhance tensile strain.
- 4 (Original). The method of claim 1 including blanket depositing a carbon doped silicon material.
- 5 (Original). The method of claim 1 including blanket depositing a boron doped silicon material.
- 6 (Original). The method of claim 1 wherein selectively removing includes etching in the presence of sonication.
- 7 (Original). The method of claim 6 including etching using tetramethylammonium.
- 8 (Original). The method of claim 6 including etching using NH_4OH .
- 9 (Original). The method of claim 1 wherein blanket depositing includes depositing using trisilane.

10 (Original). The method of claim 9 including depositing using trisilane at a temperature less than 550°C.

11 (Original). The method of claim 1 including forming a strained channel NMOS transistor.

12 (Original). The method of claim 1 including forming a strained channel PMOS transistor.

13 (Currently Amended). The method of claim 1 including removing ion implanted source/drain regions and blanket depositing a mobility enhancing silicon material ~~over~~ in place of said removed source/drain regions and over gate electrode regions.

14 (Withdrawn). A semiconductor structure comprising:
a semiconductor substrate;
a gate structure formed over said substrate; and
a film of mobility enhancing material formed over said substrate and said gate structure, said film being amorphous over said gate structure and crystalline over said semiconductor substrate.

15 (Withdrawn). The structure of claim 14 wherein said film is carbon doped.

16 (Withdrawn). The structure of claim 14 wherein said film is boron doped.

17 (Withdrawn). The structure of claim 14 wherein said film includes trisilane.

18 (Withdrawn). The structure of claim 14, said substrate including depressions, filled with said film, on either side of said gate structure.

19 (Original). A method comprising:
removing implanted source/drain regions on either side of a gate structure;
forming a crystalline film over said substrate where said source/drain regions
were removed; and
forming an amorphous film over said gate structure.

20 (Original). The method of claim 19 including depositing a carbon doped silicon
material to form said amorphous and crystalline films.

21 (Original). The method of claim 19 including selectively removing the amorphous
film without substantially removing the crystalline film.

22 (Original). The method of claim 21 wherein selectively removing includes etching in
the presence of sonication.

23 (Original). The method of claim 22 including etching using tetramethylammonium.

24 (Original). The method of claim 22 including etching using NH_4OH .

25 (Original). The method of claim 19 wherein said films are formed by depositing a
silicon layer using trisilane at a temperature less than 550°C .

26 (Original). A method comprising:
forming a film of mobility enhancing material over a semiconductor substrate and
over a gate electrode structure; and
selectively etching the material over the gate electrode structure without
substantially etching the material over the substrate.

27 (Original). The method of claim 26 including blanket depositing said material to
enhance compressive strain.

28 (Original). The method of claim 26 including blanket depositing said material to enhance tensile strain.

29 (Original). The method of claim 26 wherein selectively etching includes etching in the presence of sonication.

30 (Original). The method of claim 29 including depositing said material using trisilane at a temperature less than 550°C.

31 (Original). The method of claim 26 including removing ion implanted source/drain regions and blanket depositing a mobility enhancing silicon material over said removed source/drain regions and over gate electrode regions.

32 (Original). The method of claim 31 including depositing a carbon doped silicon to form amorphous and crystalline films.